

REMARKS

Favorable reconsideration and allowance of the subject application are respectfully requested in view of the following remarks.

Summary of the Office Action

Claims 1, 3, 5 and 6 stand rejected under 35 U.S.C. §102(b) as being anticipated by Suzuki (U.S. Patent No. 5,510,956).

Claims 1-7 stand rejected under 35 U.S.C. §102(b) as being anticipated by Wang et al. (U.S. Patent No. 5,977,626).

Summary of the Response to the Office Action

Applicant cancels claim 3 without prejudice or disclaimer, amends claim 1, and adds new claim 8 by this amendment. Accordingly, claims 1, 2 and 4-8 are currently pending.

Claim Rejections Under 35 U.S.C. §102(b)

Claims 1, 3, 5 and 6 stand rejected under 35 U.S.C. §102(b) as being anticipated by Suzuki, and Claims 1-7 stand rejected under 35 U.S.C. §102(b) as being anticipated by Wang et al. These rejections are respectfully traversed for at least the following reasons.

With regard to claim 3, Applicant respectfully requests withdrawal of the rejections of claim 3 as the cancellation of claim 3 renders the rejections moot.

With regard to claims 1, 2 and 4-7, Applicant respectfully submit that neither Suzuki nor Wang et al. anticipates these recited claims, because neither Suzuki nor Wang et al. teaches or suggests every feature of these claims.

Suzuki

Applicant respectfully submits that Suzuki fails to teach or suggest the claimed combination as set forth in independent claim 1, as newly-amended, including at least “a printed

circuit board adapted for mounting the die thereon, the printed circuit board having an area 100 % to 150 % as large as an area of the die,” and “a liquid encapsulant filled between the printed circuit board and the heat sink for securely connecting the printed circuit board and the heat sink and shielding the printed circuit board from the outside.”

In the rejection, the Office Action asserts that the bare chip parts (14), the metal pad (16), the metal enclosure member (19) and the resin (17) as taught by Suzuki respectively correspond to the die, the printed circuit board, the heat sink and the encapsulant, as set forth in Applicant’s claimed combination. However, Suzuki discloses at column 3, lines 8-11 that the “metal pad (metal thin film) 16 is formed uniformly over the entire periphery of the unit circuit board 11 in the proximity of the outer periphery of the thin film wiring layer 12.” Thus, as shown in FIGs. 3A and 3B, the metal pad (16) does not have an area 100 % to 150 % as large as an area of the bare chip parts (14), as asserted by the Office Action.

In addition, Suzuki teaches covering “the surface of the thin film wiring layer 12 including the bare chip parts 14... with a resin enclosure member 17 made of an epoxy resin material or a silicon resin material (potting agent) with the surfaces of the [bare] chip parts 14 partially exposed to the outside as shown in FIGS. 3A and 3B.” Column 3, lines 14-19 of Suzuki. Thus, as shown in FIG. 3A, the resin (17) does not cover or shield the metal pad (16). Further, no portion of Suzuki’s disclosure discusses the molding compound (30) being an epoxy liquid encapsulant.

M.P.E.P. § 2131 states “[t]o anticipate a claim, the reference must teach every element of the claim.” Applicant respectfully submits that since Suzuki does not teach or suggest every feature of independent claim 1, Suzuki does not anticipate claim 1. Further, since claims 5 and 6 depend from claim 1, it is respectfully submitted that Suzuki also does not anticipate claims 5

and 6. Accordingly, withdrawal of the rejection of claims 1, 5 and 6 under 35 U.S.C. §102(b) in view of Suzuki is respectfully requested.

Wang et al.

Applicant respectfully submits that Wang et al. fails to teach or suggest the claimed combination as set forth in independent claim 1, as newly-amended, including at least “a liquid encapsulant filled between the printed circuit board and the heat sink for securely connecting the printed circuit board and the heat sink and shielding the printed circuit board from the outside.”

In the rejection, the Office Action asserts that the die (22), the substrate (20), the heat spreader (32) and the molding material (30) as taught Wang et al. respectively correspond to the die, the printed circuit board, the heat sink and the encapsulant, as set forth in Applicant’s claimed combination. However, Wang et al. discloses at column 4, lines 65-67 that “the molding compound 30 is formed over the die 22 and the heat spreader 32 for protection.” Thus, Wang et al.’s molding compound (30) is not filled between the substrate (20) and the heat spreader (32), as asserted by the Office Action. Also, see FIGs. 7C and 7D of Wang et al. In fact, Wang et al.’s heat spreader (32) appears to an enclosure member completely covering the die (22), such that the molding compound (30) would not be between the heater spreader (32) and the die (22). See, for example, FIG. 5 of Wang et al.

In addition, no portion of Wang et al.’s disclosure discusses the molding compound (30) being an epoxy liquid encapsulant.

Accordingly, in view of the above, Applicant respectfully submits that since Wang et al. does not teach or suggest every feature of independent claim 1, Wang et al. does not anticipate claim 1. Further, since claims 2 and 4-7 depend from claim 1, it is respectfully submitted that

Wang et al. also does not anticipate claims 2 and 4-7. Accordingly, withdrawal of the rejection of claims 1, 2 and 4-7 under 35 U.S.C. §102(b) in view of Wang et al. is respectfully requested.

New Claim 8

Applicant has added new claim 8 to differently define the invention. Applicant respectfully submits that claim 8 is allowable at least because of its respective dependence from claim 1 and because of the features recited therein.

Conclusion

In view of the foregoing, withdrawal of the rejections and allowance of the pending claims are earnestly solicited. Should there remain any questions or comments regarding this response or the application in general, the Examiner is urged to contact the undersigned at the number listed below.

If there are any other fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-0310. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such extension is requested and the fee should also be charged to our Deposit Account.

Respectfully submitted,

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